

Serial No.: 09/987,376
Examiner: Stephen E. Jones

In the claims:

64. (Currently amended). A filter assembly, comprising:

a block resonator filter comprising a block of dielectric material, having faces designated in terms of X, Y, and Z directions, and having a conductive plating, the block resonator filter characterized by three resonant modes, namely Mode 1 = TE₁₁₀, Mode 2 = TE₁₀₁, and Mode 3 = TE₀₁₁ with the TE fields designated for the x, y, and z directions; and

at least one tuning element adapted for tuning one mode's resonant frequency of one mode substantially independent of the other mode's resonant frequencies of the other modes;
and

the at least one tuning element selectable for increasing and decreasing the one mode's resonant frequency

said at least one tuning element comprising an affected area where the conductive plating is removed from a face of the block resonator filter, and the tuning element is selected from among the following:

an affected area shaped like a slot in at least one of the following configurations,
to decrease a frequency of resonance

a slot along the X-direction in the X-Y face to decrease the resonant frequency of Mode 2,

a slot along the X-direction in the X-Z face to decrease the resonant frequency of Mode 1,

a slot along the Y-direction in the X-Y face to decrease the resonant frequency of Mode 3,

a slot along the Y-direction in the Y-Z face to decrease the resonant frequency of Mode 1,

a slot along the Z-direction in the X-Z face to decrease the resonant frequency of Mode 3,

a slot along the Z-direction in the Y-Z face to decrease the resonant frequency of Mode 2, and

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at least one circular affected area placed in at least one of the following locations
to increase a frequency of resonance

on the X-Y face to increase the resonant frequency of Mode 1.

on the X-Z face to increase the resonant frequency of Mode 2, and

on the Y-Z face to increase the resonant frequency of Mode 3.

65. (Canceled)

66. (Currently amended). The filter assembly according to Claim 6465, wherein the at least one ~~void~~ affected area is shaped like a slot, and the ~~one mode's resonant frequency of the one mode~~ is decreased as a length of the slot is increased.

67. (Canceled)

68. (Currently amended). The filter assembly according to Claim 6465, wherein the at least one ~~void~~ affected area is shaped like a rectangular slot, ~~one of rectangular shaped for decreasing the one mode's resonant frequency and circular shaped for increasing the one mode's resonant frequency.~~

69 - 70 (Canceled).

71. (Currently amended). The filter assembly according to Claim 64[[69]], wherein in thean ~~affected~~ affected area of conductive plating is one of removing the conductive plating and indenting the conductive plating.

72-76 (Canceled)

77. (Currently amended). A filter assembly, comprising:

a block resonator filter comprising a block of dielectric material having a conductive plating; and

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a means for tuning at least one of three resonant ~~resonate~~-frequencies associated with the block resonator filter; and

the tuning means comprising an ~~effected~~-affected area of the conductive plating having a determined shape for selectable increasing or decreasing the at least one ~~resonate~~-resonant frequency, wherein a circular shape increases the resonant ~~resonate~~-frequency, and a rectangular shape decreases the ~~resonate~~ frequency;and

a mask filter operably connected to said block resonator filter, wherein a passband of said mask filter is wider than a passband of said block resonator filter; and a low-pass filter operably connected to said block resonator filter, wherein said low-pass filter rejects frequencies greater than the passband of said block resonator filter.

78. (Currently amended). The filter assembly according to Claim 64[[77]], wherein the affected ~~effected~~-area comprises an area of the conductive plating having a decreased thickness with respect to the remaining conductive plating.

79-80 (Canceled)